

4 ANSWER 2 OF 5 CA COPYRIGHT 2001 ACS
 AN 133:154514 CA
 TI Inorganic binders from alkali activated waste **glass**
powders and use for artificial stone manufacture
 IN Jin, Weihua
 PA USA
 SO PCT Int. Appl., 31 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C04B012-04
 ICS C04B014-22; C04B028-26
 CC 58-4 (Cement, Concrete, and Related Building Materials)
 Section cross-reference(s): 57, 60
 FAN.CNT 2

U.S. case allowed
 5/1/0

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000044685	A1	20000803	WO 2000-US1873	20000127

W: CN, JP

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE

PRAI US 1999-117593 P 19990127
 US 1999-117594 P 19990127

AB A binder compn., comprising a **glass powder** with a
 particle size of at least less than 0.15 mm and an alkali activator
 contg.

at least one alkali metal and at least one silicate, is described.
 Preferably, a **sodium silicate** with a SiO:Na₂O wt.
 ratio between about 1.6:1 to about 2.0:1 is used. Mixed with water, the
 binder compn. can be cured at ambient temp., but rapidly yields a very
 high strength at an elevated temp. between about 40 .degree.C to about

120

.degree.C, preferably, between about 70 .degree.C to about 90 .degree.C.
 Further supplementary materials may be added to the binder. Further, a
 method of making artificial stone, using glass as a sole binder and
 aggregate, is described. Thus, a binder was prepd. from 100 parts
glass powder (beverage bottles crushed and ground to US
 std. sieve no. 200) and 8.53 parts **sodium silicate**
 (SiO₂:Na₂O wt. ratio .apprx. 1.636), mixed with water to form a past and
 cast in a mold, and cured at 80 .degree.C. The compressive strength
 immediately after curing was 92.19 MPa which increased to 159.96 after 2
 yr.

ST inorg binder waste glass recycling alkali activation; artificial stone
 alkali activated waste glass binder aggregate

IT Alkali metal fluorides
 Alkali metal hydroxides

RL: MOA (Modifier or additive use); USES (Uses)
 (activator; inorg. binders from alkali-activated waste **glass**
powders and use with waste glass aggregate for artificial stone
 manuf.)

IT Alkali metal compounds

RL: MOA (Modifier or additive use); USES (Uses)
 (activators; inorg. binders from alkali-activated waste **glass**
powders and use with waste glass aggregate for artificial stone